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10/815,650	04/02/2004	Shinji Moriyama	251290US0	8195

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OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.  
1940 DUKE STREET  
ALEXANDRIA, VA 22314

EXAMINER
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NOTE, JANIS L

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 06/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/815,650

Applicant(s)

MORIYAMA ET AL.

Examiner

Janis L. Dote

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 30 November 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 6/25/04; 11/30/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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1. The Japanese patent documents, JP 2003-280277 and 2000-10344, listed on the form PTO-1449 filed on Jun. 25, 2004, have been crossed-out by the examiner because applicants did not provide copies of the Japanese patent documents. Applicants did provide an English-language abstract describing JP 2003-280277. The examiner has considered the English-language abstract and has properly listed the abstract on the form PTO-1449.

2. The disclosure is objected to because of the following informalities:

The use of trademarks, e.g., Henschel mixer [sic: HENSCHEL MIXER] at page 11, line 18, or Coulter counter [sic: COULTER COUNTER] at page 13, lines 20-21, has been noted in this application. The trademarks should be capitalized wherever they appear and be accompanied by the generic terminology. These examples are not exhaustive. Applicants should review the entire specification for compliance.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Appropriate correction is required.

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3. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

In claim 5, the recitation "dielectric loss tangent of 0.01 or less" lacks antecedent basis in the specification. See page 11, lines 23-24, of the specification, which discloses a dielectric loss of from 0.001 to 0.01. The range "0.01 or less" is broader than the disclosed range of 0.001 to 0.01 because it includes values less than 0.001.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 10 is indefinite in the phrase "[a] process for development of a two-component developer, comprising applying

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the two-component developer of claim 9 to a developing device for two-component development." Claim 9 recites a two-component developer comprising a toner and a carrier. A toner is usually defined as the "ink powder mixture used to form images in xerography." See Webster's New World Dictionary, Third College Edition, page 1408. Thus, it is not clear what is meant by the phrase "process for development of a two-component developer." Nor is it clear what process applicants are trying to claim.

If applicants intend for claim 10 to recite a process for forming an image by a two-component development, the following rejection applies.

Claim 10 is indefinite because it is not clear how applying a two-component developer to a development device for two-component development forms an image. The specification does not define what is meant by the phrase "a development device for two-component development." Nor does the specification explain how an image is formed by merely applying a two-component developer to a developing device. According to Schaffert, developing the latent charge pattern on a photoreceptor can be accomplished by a two-component development that includes either: (1) mixing the carrier and the toner to charge the toner and then cascading or pouring the mixture over the latent charge

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pattern to bring the toner into contact with the latent pattern to develop the pattern with the toner; or (2) forming a magnetic brush with magnetic carrier particles where the toner is attached to the magnetic carrier particles, and contacting the brush to the latent charge pattern to develop the latent pattern with the toner. Schaffert, Electrophotography, pages 36-39.

Instant claim 10 does not recite any steps to clearly determine what method of two-component development is intended by the phrase "applying the two-component developer . . . to a development device for two-component development." Nor does claim 10 recite the process steps that are required to form an image by two-component development.

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f), or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1-3, 5, 9, and 10 are rejected under 35

U.S.C. 102(b) as anticipated by or, in the alternative, under 35

U.S.C. 103(a) as obvious over Japanese Patent 61-203463

(JP'463), as evidenced by Grant & Hackh's Chemical Dictionary, page 14, Schaffert, Electrophotography, page 604, Fig. 248, and applicants' admission at page 3, lines 10-16, page 11, line 23, to page 12, line 1, and in Table 1 at page 22, of the instant specification (applicants' admission I). See the USPTO English-language translation of JP'463 for cites.

JP'463 discloses a toner comprising 100 parts by weight of a polyester binder resin, an offset prevention agent, and 6 parts by weight of the activated carbon associated with the

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tradename Shirawashi A-1 [sic: Shiragashi A-1] obtained from Takeda Pharmaceutical Industries K.K. The activated carbon has an average particle diameter of 4.5  $\mu\text{m}$ . Translation, Working example 1, toner (1) at page 8, and Table 3 at page 12, toner (1). JP'463 further discloses a two-component developer comprising toner (1) and a magnetic carrier. Translation, page 10, lines 11-13. The 4.5  $\mu\text{m}$  average particle size is within the numerical value of "5.6  $\mu\text{m}$  or less" recited in instant claim 1. The amount of the activated carbon is within the amount range recited in instant claim 3.

JP'463 further discloses a toner image forming process. JP'463 discloses that the two-component developer is used in a commercially available copier manufactured by Minolta Camera Co., Ltd., that comprises a selenium photosensitive member. Translation, page 11, lines 2-7. It is well-known in the electrophotographic arts that commercially available copiers comprise a developing device. See Schaffert, Electrophotography, page 604, Fig. 248, which shows the schematic diagram of a XEROX 914 copier. Thus, the JP'463 image forming process applies the two-component developer to a developing device for two-component development as recited in instant claim 10.



JP'463 does not identify the activated carbon as a charcoal as recited in the instant claims. However, it is well known in the chemical arts that activated carbon is "charcoal produced by the destructive distillation of vegetable matter, e.g., nutshells . . . ." See Grant & Hackh's Chemical Dictionary, page 14. Thus, it is reasonable to conclude that the JP'463 activated carbon is a charcoal as recited in the instant claims.

JP'463 does not identify the 4.5  $\mu\text{m}$  average particle size of the activated carbon associated with the tradename "Shirawashi A-1 [sic: Shiragashi A-1]" as a volume-based median particle size as recited in instant claim 1. Nor does JP'463 disclose that the activated carbon has a "coefficient of variation of 80% or less" as recited in instant claim 1. However, as discussed above, the JP'463 4.5  $\mu\text{m}$  average particle size is within the numerical value of "5.6  $\mu\text{m}$  or less" recited in instant claim 1. JP'463 shows that toner (1) exhibited stable chargeability for 10 hours. Translation, Table 1 at page 10. Toner (1) provided images with "excellent" fine line reproducibility, and with no occurrence of fogging after 50,000 copies. Translation, Table 2 at page 11, and the accompanying text at page 12, lines 1-2; and Table 3 at page 12. These are the properties sought by applicants. The instant specification discloses that when the volume-based median particle size of the

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charcoal powder is larger than 5.6  $\mu\text{m}$ , "it is difficult to contain the charcoal powder in the toner. When the coefficient of variation exceeds 80%, the state of dispersion of the charcoal powder in the toner is inhomogeneous. Therefore, when these requirements are not satisfied, not only the degree of . . . blackness and the covering strength [are] considerably lowered but also the chargeability is adversely affected, thereby resulting in the lowering of the image quality."

Instant specification, page 3, lines 10-16. The instant specification shows that a toner comprising a charcoal powder having a volume-based median particle size greater than 5.6  $\mu\text{m}$  and a coefficient of variation of greater than 80% provides images with "poor" thin-line reproducibility and background fogging; while toners comprising the charcoal powder that possesses the particle size and coefficient of variation within the scope of instant claim 1 provided images with "good" thin-line reproducibility and low occurrence of background fogging. Instant specification, Table 1 at page 22, examples 1-4 and comparative example 1. Thus, because the JP'493 toner (1) exhibits the properties sought by applicants, it is reasonable to presume that the JP'493 activated carbon has a volume-based median particle size and a coefficient of variation as recited

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in instant claim 1. The burden is on applicants to prove otherwise. In re Fitzgerald, 205 USPQ 594 (CCPA 1980).

JP'463 also does not disclose that toner (1) has a dielectric loss tangent of 0.01 or less as recited in instant claim 5. The instant specification discloses that the "dielectric loss tangent of the toner is preferably from 0.001 to 0.1 . . . from the viewpoint of the printed image quality, especially the background fogging, which is affected by the dispersibility of the charcoal powder in the toner."

Instant specification, page 11, line 23, to page 12, line 1.

As discussed supra, the JP'463 toner (1) provided images with no occurrence of fogging after 50,000 copies, which is the property sought by applicants. Translation, Table 3 at page 12.

Accordingly, it is reasonable to presume that the JP'463 toner has a dielectric loss tangent of 0.01 or less as recited in instant claim 5. The burden is on applicants to prove otherwise. Fitzgerald, supra.

10. Claim 4 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over JP'463, as evidenced by Grant & Hackh's Chemical Dictionary, page 14, and applicants' admission I. See the USPTO English-language translation of JP'463 for cites.

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JP'463, as evidenced by Grant & Hackh's Chemical Dictionary, page 14, and applicants' admission I, discloses a toner as described in paragraph 9 above, which is incorporated herein by reference. According to JP'463, because activated carbon has a high surface electric resistance and low cohesibility, it has good dispersion properties. Translation, page 3, lines 23-25. When the dispersion characteristics are improved, uniform charging is obtained and toner scattering is reduced. The "gradation reproducibility of the image texture is improved, and unevenness in the half-tone areas is eliminated." Translation, page 3, line 25, to page 4, line 3.

JP'463 does not identify from what source the activated carbon associated with tradename "Shirawashi A-1 [sic: Shiragashi A-1]" is obtained. However, JP'463 discloses that the activated carbon used in the invention "may be any type of activated carbon such as coconut shells, wood carbon, etc." Translation, page 4, line 4-5. Because JP'463 explicitly names only two sources of activated carbon, it is reasonable to presume that the activated carbon associated with tradename "Shirawashi A-1 [sic: Shiragashi A-1]" is obtained from either coconut shells or wood carbon. The burden is on applicants to prove otherwise.

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Alternatively, it would have been obvious for a person having ordinary skill in the art to use an activated carbon obtained from coconut shells or wood carbon in the toner disclosed by JP'463 because that person would have had a reasonably expectation of successfully using activated carbon, based on the known properties of activated carbon disclosed by JP'463.

11. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP'463, as evidenced by Grant & Hackh's Chemical Dictionary, page 14, and applicants' admission I, combined with US 6,383,705 B2 (Aoki). See the USPTO English-language translation of JP'463 for cites.

JP'463, as evidenced by Grant & Hackh's Chemical Dictionary, page 14, and applicants' admission I, discloses a toner as described in paragraph 9 above, which is incorporated herein by reference.

JP'463 does not exemplify a toner comprising the polyester resin recited in instant claim 6. However, JP'463 teaches that the toner binder resin may be "any material already used as a binder resin for toners . . . [which] include[s] . . . polyester resins." Translation, page 4, line 25, to page 5, line 1.

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Aoki discloses a toner binder resin comprising crystalline polyester resin **A** having a softening point of 127.3°C and amorphous polyester resin **d** having a softening point of 100°C. Tables 1 and 2 at cols. 7-10 and Table 3 at col. 10, example 1. Polyester resin **A** and polyester resin **d** meet, respectively, the high softening point and low softening point polyesters recited in instant claim 6. According to Aoki, a toner comprising said binder resin has excellent low temperature fixing ability, offset resistance, blocking resistance, and pulverizability. Col. 1, lines 55-58, and Table 4 at col. 12, example 1.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Aoki, to use the toner binder resin in example 1 of Aoki as the binder resin in toner (1) of JP'463, because that person would have had a reasonable expectation of successfully obtaining a toner that has excellent low temperature fixing ability, offset resistance, blocking resistance, and pulverizability, as disclosed by Aoki.

12. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP'463, as evidenced by Grant & Hackh's Chemical Dictionary, page 14, and applicants' admission I, combined with US 5,079,123 (Nanya). See the USPTO English-language translation of JP'463 for cites.

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JP'463, as evidenced by Grant & Hackh's Chemical Dictionary, page 14, and applicants' admission I, discloses a toner as described in paragraph 9 above, which is incorporated herein by reference.

JP'463 does not exemplify a toner comprising a low-melting point wax as recited in instant claims 7 and 8. However, JP'463 does not limit the type of offset prevention agent used in its toner. Translation, page 6, line 25, to page 7, line 2.

According to Nanya, a polyolefin wax, such as a low-molecule weight polypropylene, "can impart to the toner high resistance to the off-set phenomenon, but cannot sufficiently improve the fixing ability [of the toner] at low temperatures." Col. 1, lines 55-60. Nanya further discloses that toners comprising a conventional carnauba wax as a release agent have both high resistance to the off-set phenomenon and excellent fixing ability at low temperatures. Nanya, col. 1, lines 61-63. However, said toners do not have high resistance to the winding phenomenon and cause toner filming. Nanya, col. 1, lines 64-65, and col. 2, line 7. Nanya discloses that carnauba wax, which comprises generally from 3 to 4 wt% of free aliphatic acids, cannot be thoroughly dispersed in the toner binder resin. Therefore, the wax tends to separate from the toner during the development process. Nanya, col. 2, lines 3-7, and 38-39.

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Nanya discloses that a carnauba wax "substantially free of aliphatic acids" overcomes the above problems. See carnauba wax B in example 2 of Nanya, which comprises 0.7 wt% of free aliphatic acids and has a melting point of 84°C, which is within the range of 50 to 120°C recited in instant claim 7. Nanya further discloses that the content of the aliphatic acids in the carnauba wax is preferably less than 1 wt%. Nanya, col. 2, lines 14-34, and 44-45. Nanya discloses that due to the removal of the aliphatic acids, the size of the wax crystal decreases to 1  $\mu$ m or less, when dispersed in the binder resin, which is said to be much smaller than that of conventional carnauba wax. Nanya discloses that for this reason a toner comprising the carnauba wax substantially free of aliphatic acids is free from the previously-mentioned filming problems, and exhibits high resistance to both off-set and winding phenomena. Col. 2, lines 46-57.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Nanya, to use carnauba wax B taught by Nanya as the offset prevention agent in toner (1) of JP'463, because that person would have had a reasonable expectation of successfully obtaining a toner that exhibits improved resistance to off-set, winding phenomena, and filming.



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13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L. Dote whose telephone number is (571) 272-1382. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Mark Huff, can be reached on (571) 272-1385. The central fax phone number is (703) 872-9306.

Any inquiry regarding papers not received regarding this communication or earlier communications should be directed to Supervisory Application Examiner Ms. Claudia Sullivan, whose telephone number is (571) 272-1052.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JLD

Jun. 18, 2005

*Janis L. Dote*  
JANIS L. DOTE  
PRIMARY EXAMINER  
GROUP 1500  
1700